ABSTRACT OF THE DISCLOSURE

A flow sensor includes sensors connected to a flexible membrane. The sensors detect ambient temperature, pressure, and flow rate of a medium. A method of sensing flow rate includes providing the flexible membrane; coupling the plurality of sensors to the flexible membrane; and detecting ambient temperature, pressure, and flow rate of the medium by the sensors. A flow sensing system includes the flow sensor, an operational amplifier, and a closed loop controller. The sensors are connected in a Wheatstone bridge configuration. The operational amplifier is connected to the Wheatstone bridge and outputs a pressure signal representative of the pressure of the medium. The closed loop controller is connected to the operational amplifier and controls a current through a heating element for a resistor in the bridge such that a voltage across the operational amplifier is substantially zero. The output of the closed loop controller represents the flow rate.

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